SERVICE MANUAL

ES529/EX539/EW539

Date	Revise Version	Description
2011.02.12	V1.0	Initial Issue

Prepare : *Mina* Check: *Amy* Approve:

Preface

This manual is applied to ES529/EX539/EW539 projection system. The manual gives you a brief description of basic technical information to help in service and maintain the product.

Your customers will appreciate the quick response time when you immediately identify problems that occur with our products. We expect your customers will appreciate the service that you offer them.

This manual is for technicians and people who have an electronic background. Please send the product back to the distributor for repairing and do not attempt to do anything that is complex or not mentioned in the troubleshooting.

Notice: The information found in this manual is subject to change without prior notice. Any subsequent changes made to the data herein will be incorporated in future edition.

ES529/EX539/EW539 Service Manual

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Manual Version 1.0

ES529/EX539/EW539 Comparison List

Parts	ES529	EX539	EW539
Engine Module	70.8LH05GR01	70.8LE10GR01	70.8LJ08GR01
DMD	48.8EH01G001	48.8CQ01G003	48.8EJ01G001
Main BD	80.8LH01G001	80.8LE01G001	80.8LJ01G001
IO COVER	70.8LH03GR01		70.8LJ07GR01
TOP COVER	75.8EH01G091		75.8EH01G001

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Chapter 1

Introduction

1-1 Highlight

No	Item	Description
1	Dimensions (WxDxH)	● 286x192x97mm
2	Power Supply	● 100V-240V±10% 50-60Hz
3	Power Consumption	● Normal: TYP 250W Max 275W @110V AC ● ECO: TYP 200W Max 220W @110V AC ● Standby mode < 1W @110V AC
4	Keystone correction	● +/-40 degree is the scaler spec. ● +/-20 degree is for system angle of V-keystone
5	Throw ratio	● 1.95~2.15 (D/W)(ES529/EX539) ● 1.55~1.7(D/W)(EW539)
6	Projection lens	● YM09X/FPL62(ES529) ● YM09X/FPL30(EX539) ● YM31Z(EW539)
7	Lamp life	Normal Mode: ● 3000 Hours Standard @ 200W, 50% Survival Rate ECO Mode: ● 6000 Hours Typical @ 160W, 50% Survival Rate
8	Lamp	● 200W Lamp (Osram E20.8)
9	DMD Chip&Number of active dots	● 0.55” SVGA, S450, Dark Chip 3(ES529) 0.55” XGA, S450, Dark Chip 3(EX539) 0.65” WXGA, S450, Dark Chip 3(EW539) ● Number of active dots: 800x600 (ES529) 1024x768(EX539) 1280x800(EW539)
10	Color wheel	● 6 segments (R81Y41G84C31W52B71)
11	System controller	● TI DDP 2431
12	Video compatibility	● NTSC: M/J,3.58MHz, 4.43MHz ● PAL: B, D, G, H, I, M, N, 4.43MHz ● SECAM: B, D, G, K, K1, L,4.25/4.4MHZ ● SDTV: 480i/p, 576i/p ● HDTV: 720p(50/60Hz), 1080i/p(50/60Hz)

No	Item	Description
13	Input signal spec	● VGA-in x1 (support SCART/YPbPr) ● S-Video(Mini DIN) x1 ● Audio input(Mini Jack) x1 ● Composite Video x1 ● HDMI v1.3(with HDCP support)
14	Altitude&Temperature	● Operating: 0~2,500 ft 5°C~35°C 2,500~5,000 ft 5°C~30°C 5,000~10,000 ft 5°C~25°C

1-2 Compatible Mode

Computer Compatibility

Compatibility	Resolution	Analog/Digital		ES529/ EX539	EW539
		V-Sync(Hz)	H-Sync(KHz)		
VGA	640x350	70	31.5	V	V
	640x350	85	37.90	V	V
	640x400	70	31.50	V	
	640x400	85	37.90	V	V
	640x480	60	31.5	V	V
	640x480	67	-	V	V
	640x480	72	37.90	V	V
	640x480	75	37.50	V	V
	640x480	85	43.30	V	
	720x350	70	31.50	V	
	720x400	70	31.50	V	V
	720x400	85	37.90	V	V
	720x576	50	-	V	
	720x576	60	-	V	
SVGA	800x600	56	35.20	V	V
	800x600	60	37.90	V	V
	800x600	72	48.10	V	V
	800x600	75	46.90	V	V
	800x600	80	-	V	
	800x600	85	53.70	V	
	800x600	120	-		V

Compatibility	Resolution	Analog/Digital		ES529/ EX539	EW539
		V-Sync(Hz)	H-Sync(KHz)		
XGA	1024x576	50	-	V	
	1024x576	60	-	V	
	1024x768	60	48.40	V	V
	1024x768	70	56.50	V	V
	1024x768	72	57.70	V	-
	1024x768	75	60.00	V	V
	1024x768	85	68.70	V	
	1024x768	120	-		V
	1152 × 864	60	-	V	
	1152 × 864	70	-	V	
	1152 × 864	75	-	V	
	1152 × 864	85	-	V	
	1152 × 870	75	-	V	V
HD	1280x720	50	-	V	V
HD	1280x720	60	45.00	V	V
HD	1280x720	75	-	V	V
HD	1280x720	85	-	V	V
HD	1280x720	120	-		V
WXGA	1280 x 768	60	47.40	V	
WXGA	1280 x 768	70	-	V	
WXGA	1280 x 768	75	-	V	
WXGA	1280 x 768	85	-	V	
WXGA-800	1280 x 800	60	-	V	V
SXGA	1280x1024	60	64.00	V	V
SXGA	1280x1024	75	80.00	V	V
SXGA	1280x1024	85	91.10	V	V
	1366x768	60	-		V
	1400x900	60	55.94		V
SXGA+	1400x1050	60	-		V
UXGA	1600x1200	60	75.00	V	V
	1600x1050	60	-		V
HDTV	1920x1080	30	33.80	V	V
HDTV	1920x1080	25	28.10	V	
MAC LC 13”	640x480	66.66		34.98	

Compatibility	Resolution	V-Sync(Hz)	H-Sync(KHz)
MAC LC13”	640 x 480	66.68	34.98
MAC II 13”	640 x 480	66.66	34.98
MAC 16”	832x624	74.55	49.73
MAC 19”	1024X768	75	60.24
MAC	1152X870	75.06	68.68
MAC G4	640X480	60	31.35
i MAC DV	1024X768	75	60.00
i MAC DV	1152X870	75	68.49

Note: If the Computer Compatibility supportive signal is different from User’s Manual, please refer to User’s Manual.

Chapter 2

Disassembly Process

2-1 Equipment Needed & Product Overview

1. Screw Bit (+): 105
2. Screw Bit (+): 107
3. Screw Bit (-): 107
4. Hex Sleeves: 5 mm
5. Tweezers
6. Projector

** Before you start: This process is protective level II. Operators should wear electrostatic chains.*

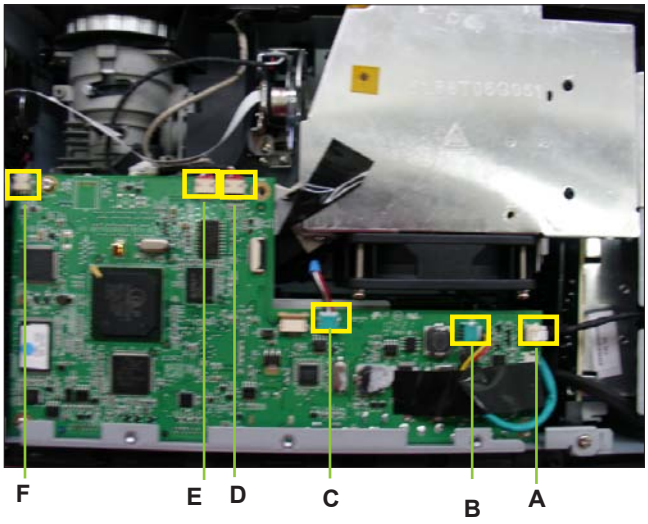
** Note: - If you need to replace the main board, you have to record the lamp usage hour.*

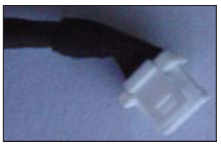
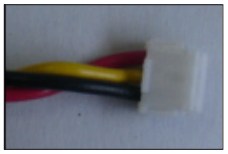
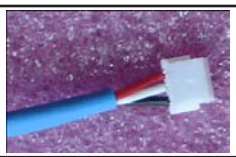
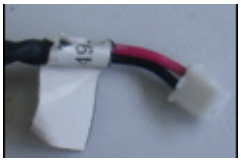
- Some related contents please refer to common SM chapter 2.

2-2 Repair notice

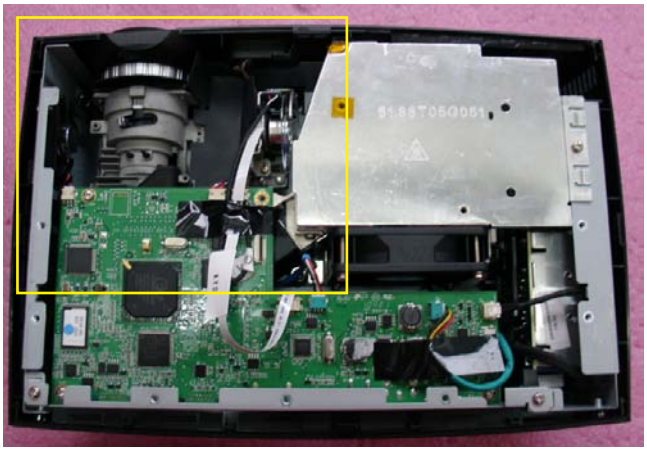
Disassemble Main Board

Please refer to the below table details of each connector on Main Board.



Item	Male Connector on Main Board	The key feature	Figure
A	Lamp Driver	Black wire tube (5 pin)	
B	Fan	Compose of Black/Yellow/Red Wire (3 pin) and green connector	
C	Blower	Compose of Red/White/Black Wire (3 pin) and blue wire tube	
D	Photo Sensor	Compose of Red/Black/White Wire (3 pin) and red connector	
E	IR	Compose of Red/Black/White Wire and Gray wire tube (3 pin)	
F	Speaker	Compose of Red/Black Wire and Black wire tube (2 pin)	

2-3 Rod Adjustment



1. Environment Adjustment

   - The distance between the engine and the screen is 2.4M (ES529/EX539) or 2.0M(EW539).

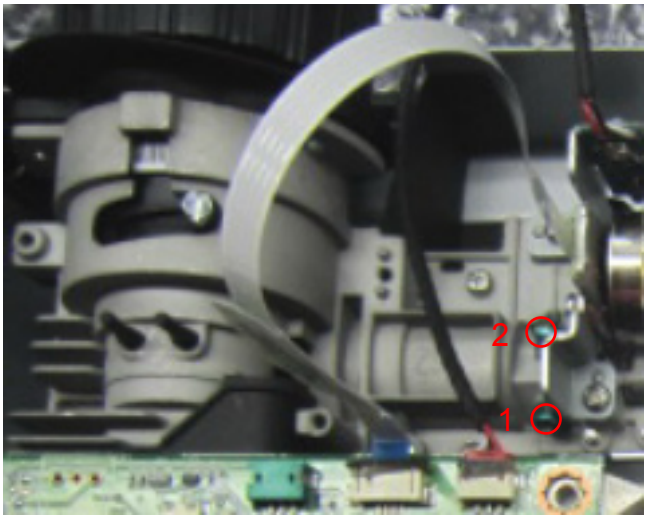
   - This process should be done at a dark environment (under 10 Lux).

2. Procedure Adjustment

   - Change the screen to "white screen".

   - Adjust the screws by using the rod on the engine module to readjust the image.

     ("screw 1" should be adjusted first, and then "screw 2". Adjust until the yellowish or bluish parts disappeared.)



3. Abnormal image inspection

   - It should not have any abnormal color at the rim of the image by estimating through the eyes.

Note: - To avoid over adjusting the rod.

- After the operation, please use the glue to fix the screws.

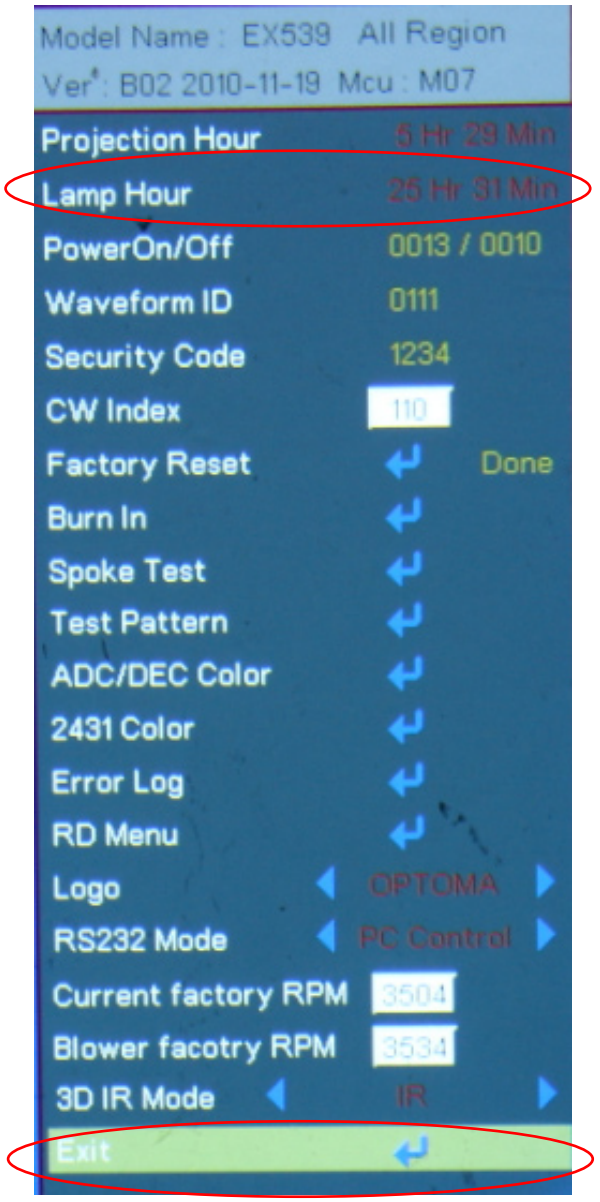
2-4 Re-write Lamp Usage Hour

1. Get into service mode

   - Press “Power”, “Left”, “Left” and “Menu” buttons sequentially to get into service mode.

2. Use “up” or “down” buttons to select “ Exit”, then use “left” or “right” buttons to re-write the lamp hour back to previous lamp usage hour.

Note: left key = decrease lamp hour
right key =increase lamp hour



Chapter 3

Trobleshooting

3-1 LED Lighting Message

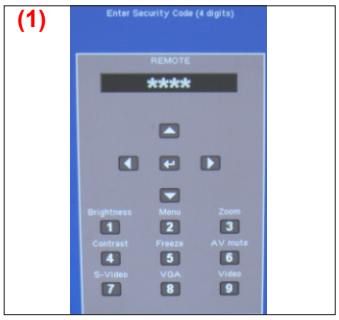
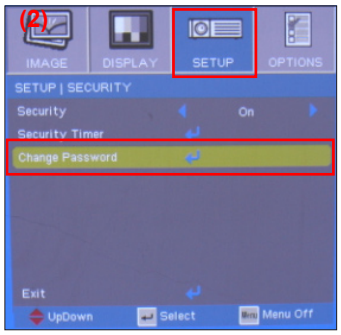
Message	Power LED (Amber)	Power LED (Green)	Temp LED (Red)	Lamp LED (Red)
Standby State (input power cord)	*	O	O	O
Power on (warming)	O	Flashing Green	O	O
Lamp lighting	O	*	O	O
Power off (Cooling)	O	Flashing Green	O	O
Error (Over Temp.)	Flashing Amber	O	*	O
Error (Fan failed)	Flashing Amber	O	Flashing	O
Error (Lamp failed)	Flashing Amber	O	O	*

* *Steady light* O *No light*

3-2 Main Procedure

The other troubleshooting procedures please refer to common service manual 3-1(Main Procedure).

No	Symptom	Procedure
1	Auto Shut Down	- Check LED Status a. Lamp Fail: Power LED (flashes amber), Lamp LED (lights red) - Check Lamp - Check Lamp Driver - Check Main Board b. Over Temp.: Power LED (flashes amber), Temp LED (lights red) - Check Fan - Check Main Board c. Fan Fail: Power LED (flashes amber), Temp LED (Flashes red) - Check Fan - Check Main Board
2	3D Image Abnormal	- Ensure the using 3D glasses is good and you must face the projection. - Ensure the CD in DVD is HQFS format or the graphic card from PC can support 3D format. - Ensure your standing distance is less than 6m from screen. - Ensure the 3D function is on and execute “3D sync invert” in OSD menu. - Check main board.

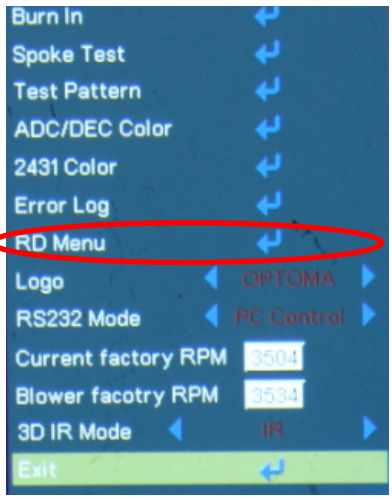
No	Symptom	Procedure
3	Forgetting Password (administrator Password)	- If you forget the Password, please do the following steps to get the Universal Password: (1) When you turn on the projector, the message “Enter Security Code” appears. Please Input the “Current Security Code 8642” by Remote Control, then press “Enter”. (2) Press “Menu” button, select “Setup”, “Change Password”, then press” Enter” button. The message “Enter Security Code” appears again, repeat step (1). (3) The message “Enter New Security Code” appears. Input a 4-digits code (letters and/or numbers) that you define. (4) To confirm, key in the password again. The “Security Code change successfully” appear on the screen.  

Chapter 4

Function Test & Alignment Procedure

4-1 Service Mode Instruction (This section links to common service manual 4-2 Service Mode)

1. Turn on the projector.
2. Press Power --> Left --> Left --> Menu on Keypad or Remote controller.
3. Service mode will be shown. After confirming the configuration, press "Exit" to exit.

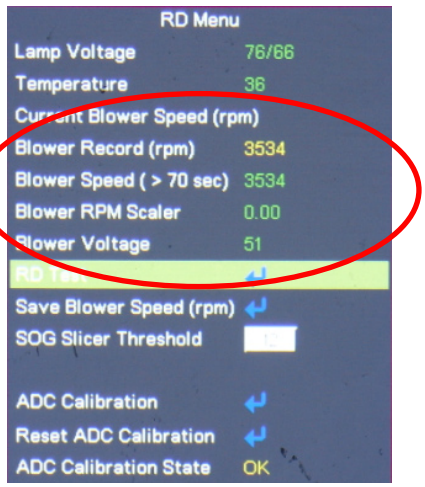


4-2 Factory Fan RPM Reset

After replace main board,blower or upgrade system FW, you need to do:

1. Plug in the power cord, hold on “Menu” button then press “Power” button, when the power LED lighted orange, Temp LED and Lamp LED lighted red about one second, loosen “Menu” button.
2. After several minutes, you can check the fan RPM as red circle
   a. Please get into Service Mode.
   b. Select “RD menu”, then press “Enter”, Fan detail information will be shown.

Note: If the factory fan Value doesn’t show in service mode,please repeat the step 1,2 again.



4-3 Test Condition(This section links to common service manual 4-4 Test Condition)

Defect specification table

For ES529/EX539

Order	Symptom	Pattern	Criteria
1	Bright pixel (dots)	Gray10 pattern	A+B=0
2	Dark pixel(dots)	White pattern	A+B≤4
3	Unstable pixel (dots)	Any pattern	A+B=0
4	Adjacent dark pixel (dots)	Any pattern	A+B=0
5	Dark blemish (Dirty)	Blue 60 pattern	A+B≤2 (diameter <1/2 inch)
6	Bright blemish (Dirty)	Gray10 pattern	A+B≤2 (diameter <1/2 inch)
7	Bright dots on frame	Gray10 pattern	≤1

For EW539

Order	Symptom	Pattern	Criteria
1	Bright pixel (dots)	Gray 10 pattern	A+B=0
2	Dark pixel(dots)	White pattern	A+B≤7
3	Unstable pixel (dots)	Any pattern	A+B=0
4	Adjacent dark pixel (dots)	Any pattern	A+B=0
5	Dark blemish (Dirty)	Blue 60 pattern	A+B≤4 (diameter <1 inch)
6	Bright blemish (Dirty)	Gray 10 pattern	A+B≤4 (diameter <1 inch)
7	Bright dots on frame	Gray 10 pattern	≤1

4-4 Test Inspection Procedure

Update	Change Parts						
	Main Board	FW	Color wheel	Lamp module	Engine module	Rod module	Blower
Version Update	V	V					
Color Wheel Index	V		V				
Lamp reset				V			
ADC Calibration	V	V					
OSD Reset	V	V					
Re-write Lamp Hour Usage	V						
EDID	V						
ROD Adjustment					V	V	
Factory Fan RPM Reset	V	V					V

4-5 PC MODE

Note:EX539 the native resolution of test signal is 1024x768@60HZ.
ES529 the native resolution of test signal is 800x600@60HZ.
EW539 the native resolution of test signal is 1280x800@60HZ.
We take EX539 for example here.

The other contents please refer to common service manual 4-6 PC MODE.

1.Bright pixel

Procedure
- Test equipment: video generator.
- Test signal: analog 1024x768@60Hz.
- Test Pattern: Gray10 pattern

Inspection item
- Bright pixel check.

Criteria
- Bright pixel is unacceptable under gray10 pattern
  Please refer to the figure in 4-4 Test Condition for Frame and Active area.
  Note: The defect criteria follows TI specification.

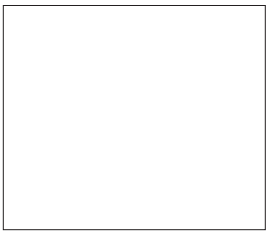
Gray 10

2. Dark pixel

Procedure
- Test equipment: video generator.
- Test signal: analog 1024x768@60Hz.
- Test Pattern: White pattern

Inspection item
- Dark pixels check.
- White pattern
- Adjacent dark pixel.

Criteria
- The number of the dark pixels should be less or equal to 4 pixels.
- Adjacent pixel with each other is unacceptable.
  Note: The defect criteria follows TI specification.



White

3. **Bright Blemish**

Procedure
- Test equipment: video generator
- Test signal: 1024x768@60Hz
- Test Pattern: Gray 10

Inspection item
- Bright blemish check

Criteria
- The bright blemish should be less or equal to 2 under gray 10 pattern.
- Ref. Defect specification table

Gray 10

4. Dark Blemish

Procedure
- Test equipment: video generator
- Test signal: 1024x768@60Hz
- Test Pattern: Blue 60

Inspection item
- Dark blemish check

Criteria
- The dark blemish should be less or equal to 2 under blue 60 pattern.
- Ref. Defect specification table

Blue 60

4-6 ADC Calibration

Procedure

- Test equipment: video generator
- Once Main Board is changed, PC calibration should be done as well.

(1) Test signal: analog 1024X768@60Hz
(for EX539)
analog 800X600@60Hz
(for ES529)
analog 1280X800@60Hz
(for EW539)

(2) Test Pattern: White/Black

White/Black

- Note:

(1) Calibration pattern should be in full screen mode.

(2) Please refer to 4-1 Guide to get into service mode, then get into "RD Menu",choose"ADC Calibration".

Inspection item

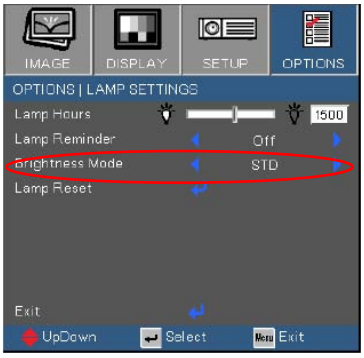
- Check if there is lines on the screen.
- Check if there is noise on the screen.
- Horizontal and vertical position of the video should be adjustable to the screen frame.

Criteria

- If there is noise on the screen, the product is considered as failure product.
- The screen appears normal, it shouldn't appear any abnormal condition, such as lines and so on.
- Check if the projection is the same as monitor displayed.

4-7 Optical Performance Measure

1. Measure setting



- Please get into OSD menu,select “Lamp Setting” under “Options”,select"Brightness Mode",then select “Bright” mode.
- Test equipment: video generator.
- Test signal:analog 800x600@60Hz (ES529)
  analog 1024x768@60Hz (EX539)
  analog 1280x800@60Hz (EW539)

2. Brightness
   Criteria: 1155 ANSI Lumens(ES529/EX539)
   1210 ANSI Lumens(EW539)

3. Contrast
   Criteria: 1800:1(ES529/EX539)
   1600:1(EW539)

4. Uniformity
   Criteria: 70%

Note:The other contents please refer to common service manual 4-8 Optical Performance Measure.

Chapter 5

Firmware Upgrade

Section 1: System Firmware Upgrade

5-1-1 Equipment Needed

Software: (DDP2431-RS232)

- DLP Composer Lite V10.0
- Firmware (*.img)
- library (ES529/EX539/EW539 library)

Hardware:

- Projector
- Power Cord (42.50115G001)
- RS232 (42.83618G001)
- PC or Laptop

Note1: we will show the hot key of service mode and how to check FW version,the other contents please refer to common service manual 5-1 .

Note2: During FW upgrade procedure,please select "32KB" in "Skip Boot Loader Area".

5-1-2 Get into FW mode

1.Set up

- Hold on "POWER" button and plug in the power cord, the power LED will start to flash until the LED status goes to steady orange, the Temp LED and Lamp LED will light on red.
- Loosen the "POWER" button.
- Connect projector with PC by RS232 cable.

Note: - The system fan and the lamp will not operate.

5-1-3 Check FW version

1.Restart the unit and get into the Service Mode(Press Power --> Left --> Left --> Menu).

2.The firmware version will be shown as red circle on the screen.

Note: Another contents please refer to common service manual 5-Section 1.

Section 2: 8051 FW Upgrade

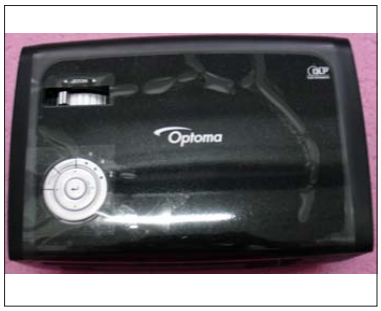
5-2-1 Equipment Needed

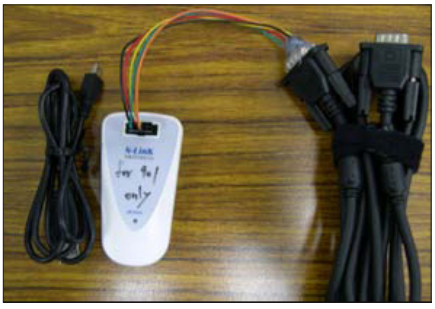
Software: (N79A901R-USB)

- Setup _NLINK_en
- Manley USB Driver_NLINK
- xxx_8051_xx.hex

Hardware:

- Projector
- Power cord: 42.50115G001
- USB Cable mini USB to USB (A) (42.00284G001)
- NLINK Fixture
- PC or Laptop





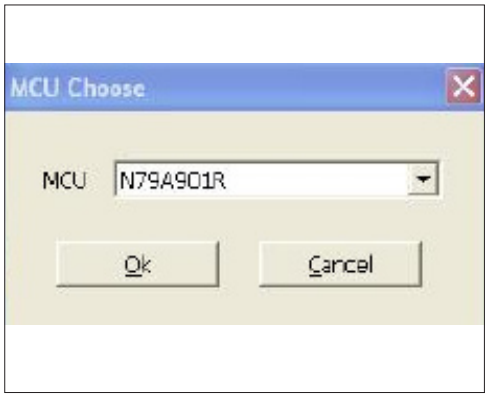
5-2-2 8051 Firmware Upgrade Procedure

1. Set-up

- Plug in the power cord, the power LED will light on red.

- Connect VGA-IN Port of projector with NLINK Fixture.

- Connect NLINK Fixture with PC by USB cable.



2. Execute 8051 FW Program

- Double click “NLINK V1.2” to execute NLINK program.

3. Choose the right type of MCU

- “MCU Choose” picture will appear on the screen, select “N79A901R”.

- Click “OK”.

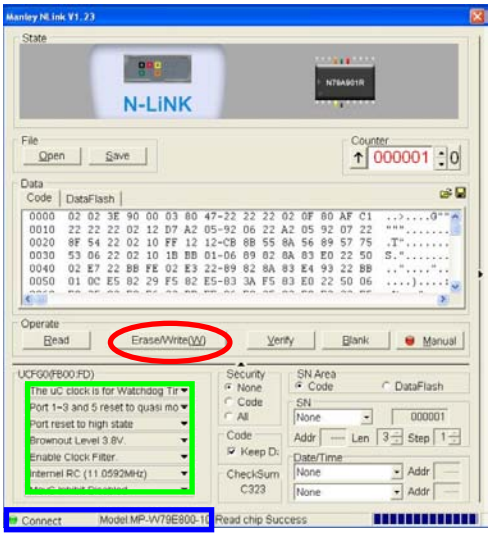
4. Program settings

Ensure NLINK Fixture and PC are securely connected: the indicator lights on green, and the state is “Connect” (as blue square).

- Select “Brownout Level 3.8V” (as green square).

- Select “Internel RC(11.0592MHz)” (as green square).

- Click “Erase/Write(W)” to execute 8051 FW upgrade (as red circle).

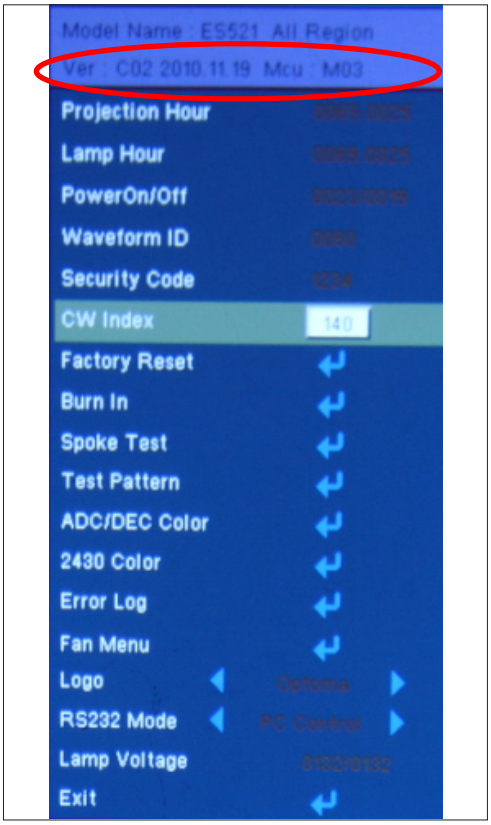


Note: Another contents please refer to common service manual 5-Section 4.

5-2-3 Check 8051 FW version

1. Restart the unit and enter the Service Mode (Press Power --> Left --> Left--> Menu).

2. The firmware version will be shown as red circle on the screen.



Chapter 6

EDID Upgrade

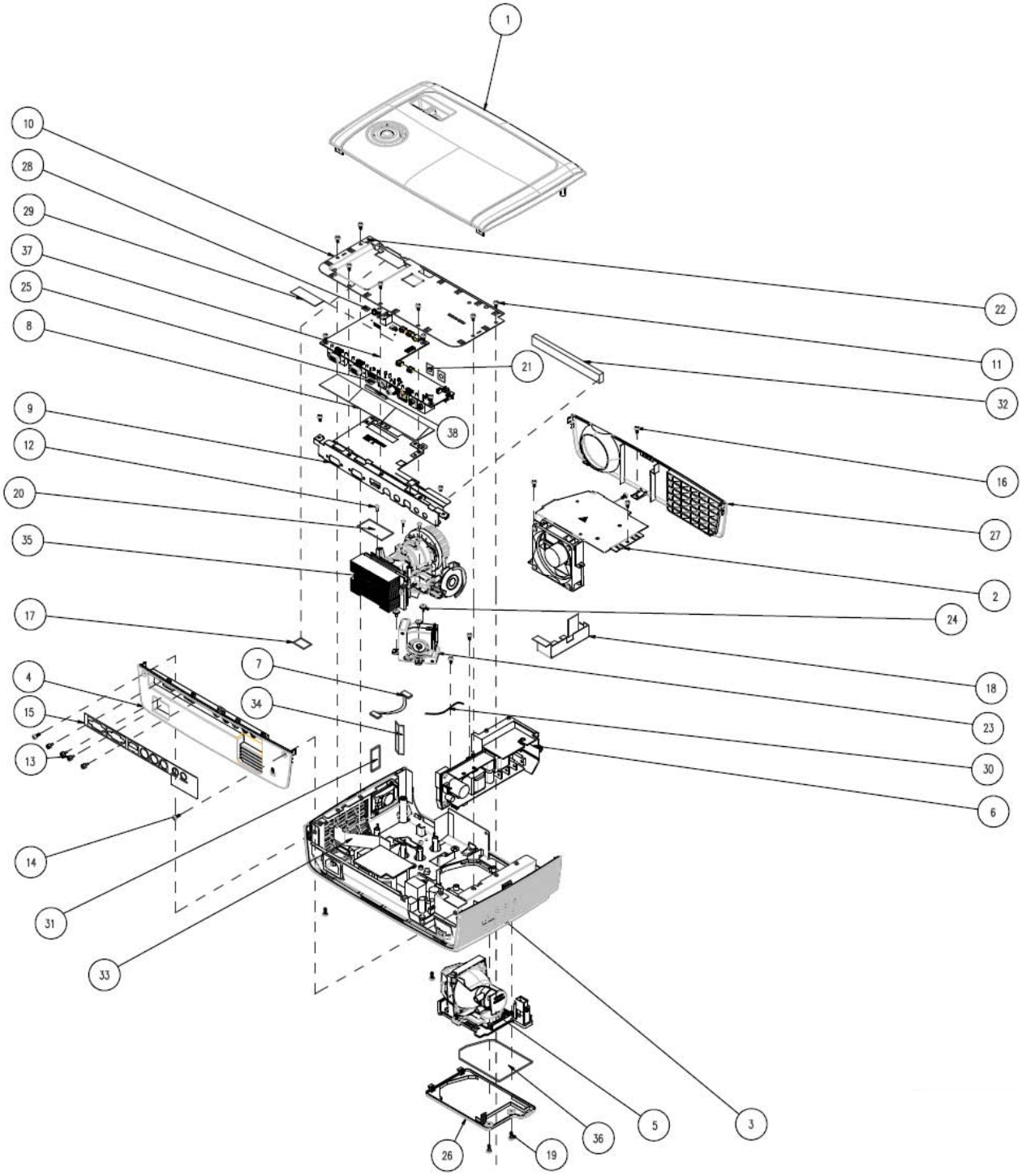
6-1 EDID Upgrade Procedure

- *The upgrade procedure for VGA and HDMI ports please refer to common service manual chapter 6.*

Appendix A (Exploded Image)

Note: This chapter is only designed to show the exploded image of the projector. For updated part numbers, please refer to RSPL report.

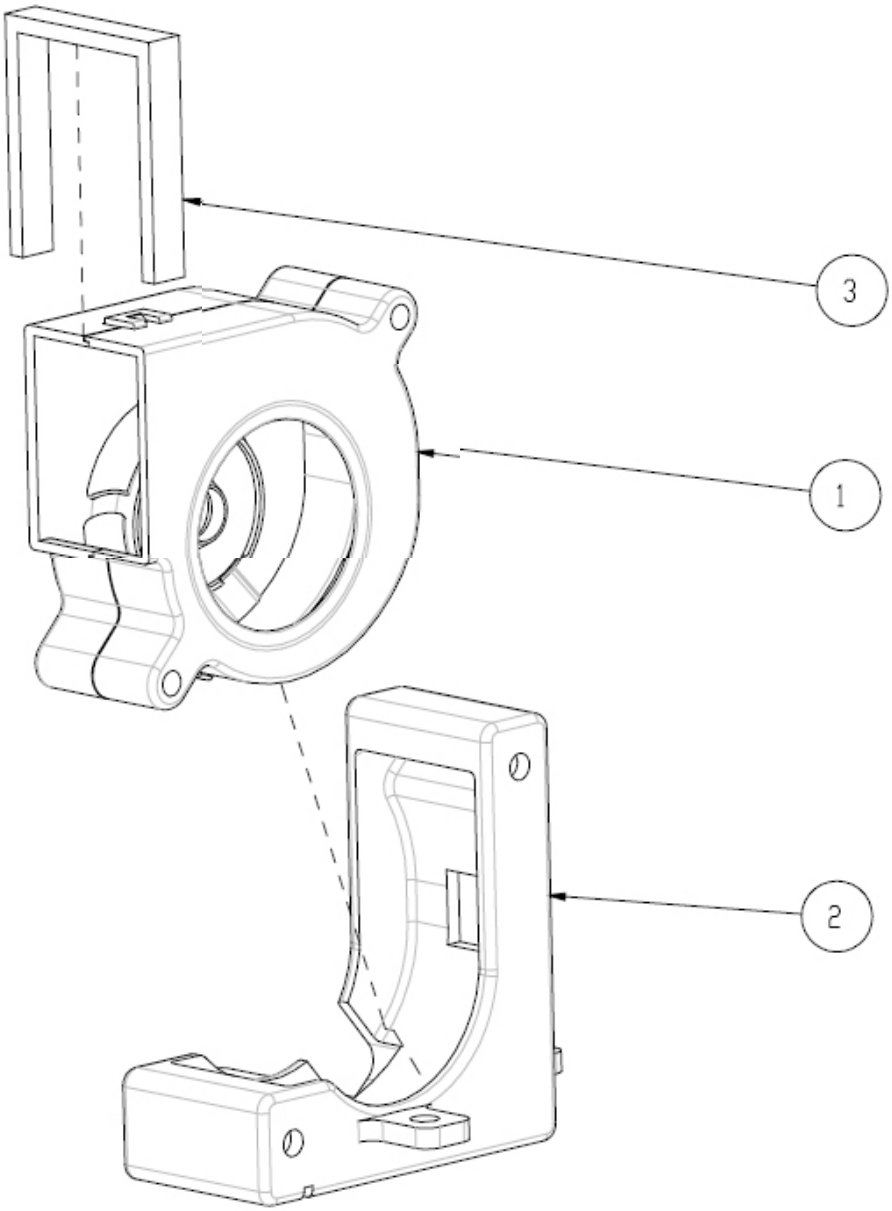
D.C. EX539



Item	P/N	Description	Parts Supply
1	70.8LE01G001	ASSY TOP COVER MODULE EX539	
2	70.8FE06G001	FAN SHIELDING MODULE EX538	
3	70.8FE01G001	ASSY BOTTOM MODULE EX538	
	70.8LH03GR01	ASSY IO COVER MODULE FOR ES529(SERVICE)	V
4	70.8LE02G001	ASSY IO COVER MODULE EX539	
5	70.8LE05G001	OSRAM E20.8 200W LAMP MODULE EX539	
	70.8LH04GR01	ASSY OSRAM LAMPDRIVER MODULE 200W FOR ES529(SERVICE)	V
	70.8FM13GR01	ASSY LAMP COVER MODULE FOR ES526(SERVICE)	V
6	70.8LE08G001	ASSY LAMP DRIVER MODULE EX539	
7	42.00455G012	W.A. 8P TO 16P 120mm MB TO LVPS 1410X	
8	51.8FF01G001	MYLAR FOR MB SHIELDING EW536	
9	61.8CS05G051	MAIN BD SHIELDING SECC 0.6T EX539	
10	61.8CS04G001	TOP SHIELDING SECC 0.4T PDG-DSU30	
11	85.0A123G050	SCREW P/F MECH M3*5 Ni	
12	85.1A526G060	SCREW PAN MECH M2.6*6 Ni NYLOK	
13	85.005AGG308	SCREW HEX I/O #4-40 H3.5*L8 NI NYLOK	
14	85.1A323G080	SCREW PAN MECH M3*8 BLACK “GREEN”	
15	35.8LE01G001	IO LABEL PC EX539	
16	85.1A123G060	SCREW PAN MECH M3*6 NI	
17	41.89Z02G001	HDMI CONNECTOR GASKET L15*W10*H1	
18	51.8CS19G001	COLOR WHEEL MYLAR PDG-DSU30	
19	61.00018G003	LOCK SCREW PAN MECH M3*8.5-3.5 BLACK(1018+HEAT TREATMENT)	
20	41.89C06G001	EMI GASKET L44*H1*W21	
21	41.89K07G001	EMI GASKET W13*H1*L13 AUDIO	
22	52.8EH04G001	RUBBER 10X5X2.5 ES526	
23	70.8FE05G001	ASSY BLOWER 4520 MODULE FOR EX538	
24	61.87340G001	STAND OFF M3*4L D8.0 2100MP	
25	41.83F01G001	GASKET/(L*13 W*10 H*2)	
26	51.8CS05G011	LAMP COVER PC LN2520 BLACK EX538	
27	70.8FE07G001	ASSY FRONT COVER MODULE EX538	
28	41.8AU02G001	EMI GASKET W6*H1*L6mm	
29	51.81540G001	TAPE 3M J350 17*60mm	

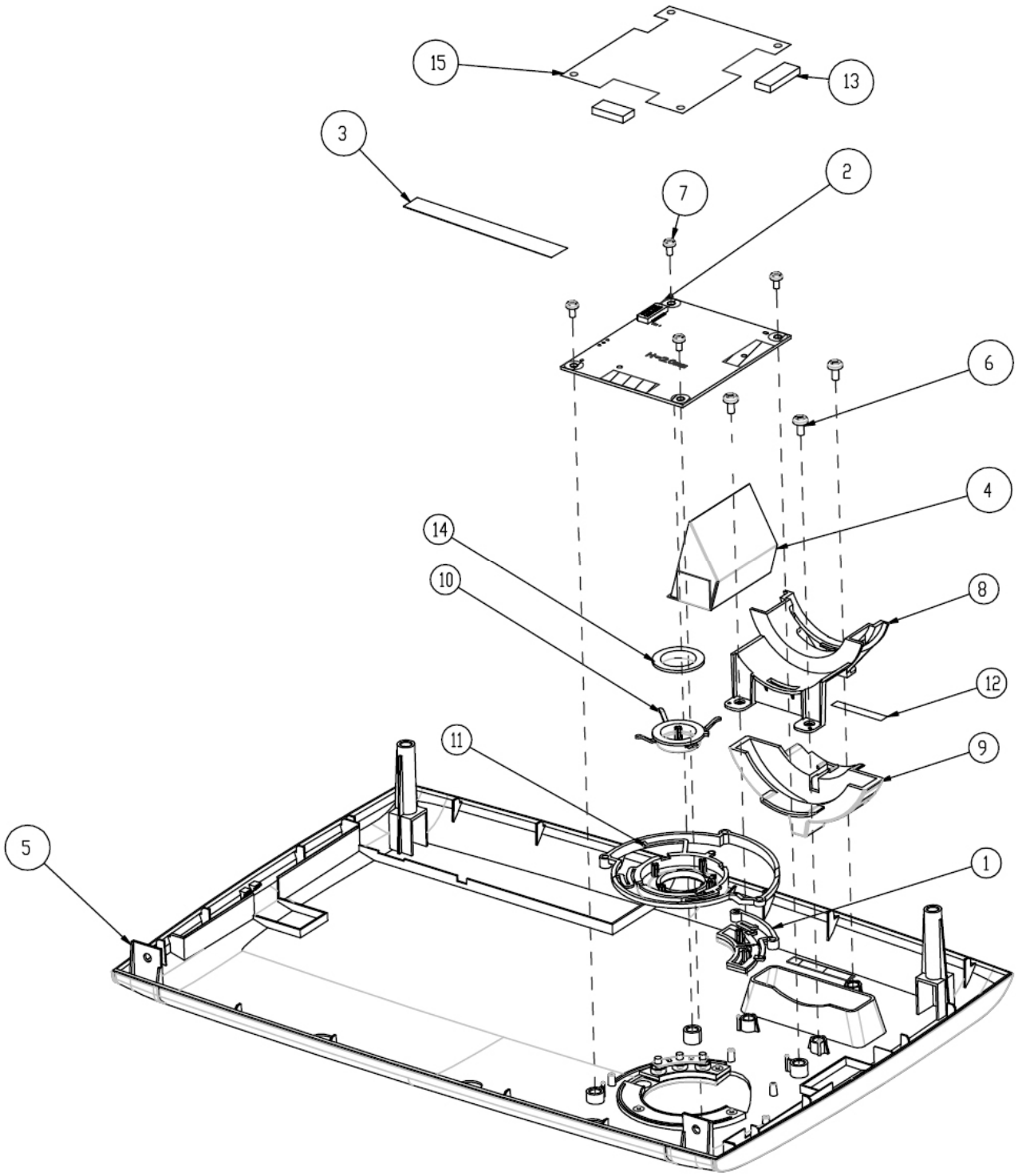
Item	P/N	Description	Parts Supply
30	61.8EH02G001	CLAMP FOR LVPS CABLE,PINGOOD WC-6 ES526	
31	52.8EH02G002	SPONGE JK-1105 25X12X3 ES526	
32	52.8CS05G002	MB SHIELDING AIR THIGHT JK-1105 PDG-DSU30	
33	51.8FM05G001	8FM LVPS MYLAR 200W	
34	51.8FM04G001	8FM MYLAR RESIST LIGHT	
35	70.8LE03G001	ASSY ENGINE MODULE EX539	
36	51.8FM02G001	8FM FOIL HT800 FOR LAMP COVER	
37	80.8LE01G001	PCBA MAIN BOARD FOR EX539 PROJECTOR	V
38	52.8FF01G001	HDMI LIGHT CUT SPONGE EW536	

ASSY BLOWER MODULE



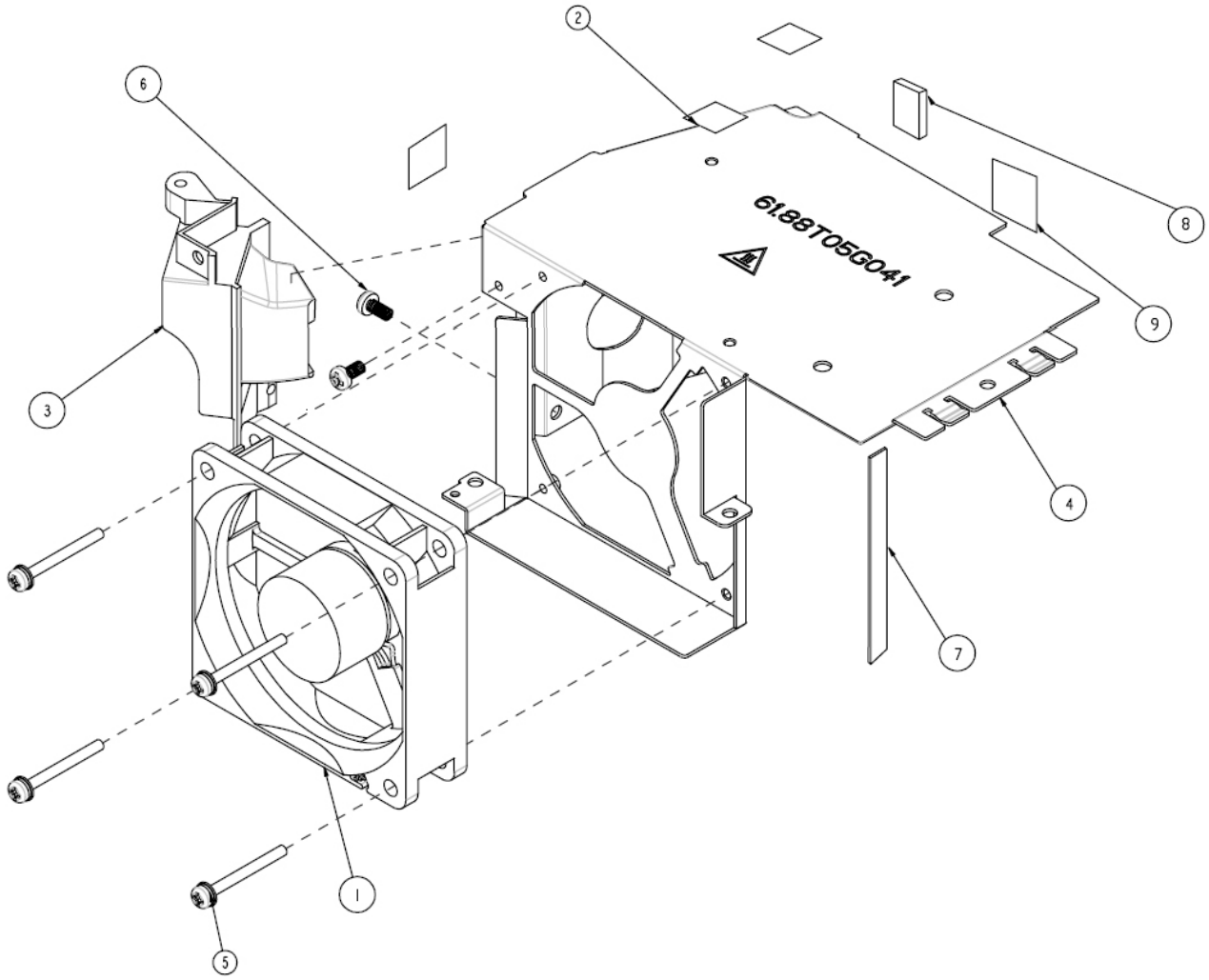
Item	P/N	Description	Parts Supply
1	49.8CS01G002	SUNON 45*20mm GB1245PKV1-8AY, F TYPE BLOWER, SHRINK TUBE	V
2	52.82G08G001	BLOWER 4520 RUBBER EP7190	
3	52.89T01G001	BLOWER AIR TIGHT F12 H5350	

ASSY TOP COVER MODULE



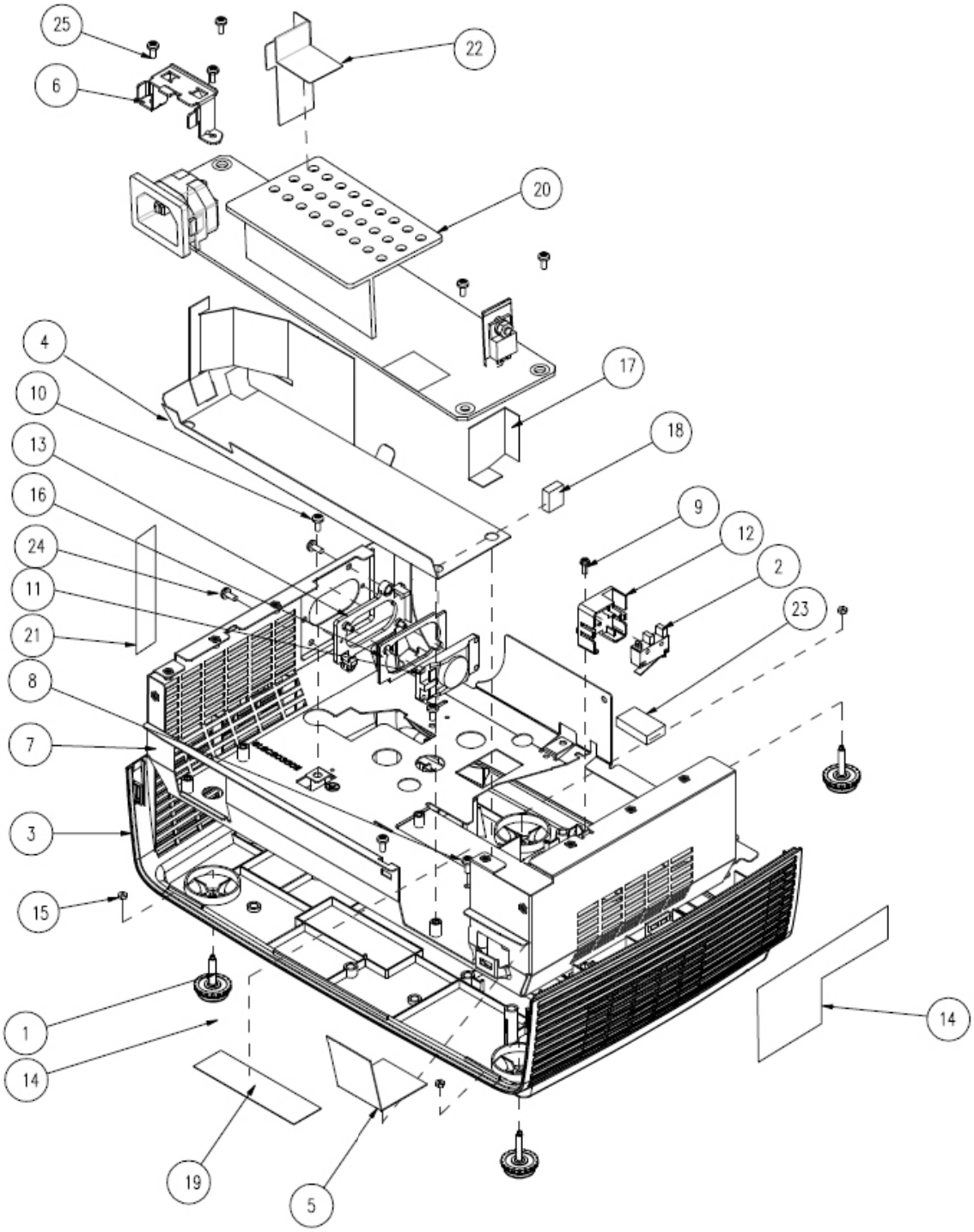
Item	P/N	Description	Parts Supply
1	51.8EH04G031	KEYPAD PC MN3600H HD66	
2	80.8EH03G001	PCBA KEYPAD BOARD FOR Z15 GENERIC	V
3	42.00304G101	FFC KEYPAD TO FORMATTER BD 16P P=0.5 122mm 1209S成朋	
4	51.8CS13G001	TOP COVER MYLAR PDG-DSU30	
5	75.8EH01G091	TOP COVER MODULE EX539	V
6	85.1A123G060	SCREW PAN MECH M3*6 NI	
7	85.3A126G040	SCREW CAP HEAD D7.0 MECH M2.6*4 Ni	
8	51.8CS12G002	ZOOM RING HOLDER PC MN3600H BLACK FOR PDG-DSU30	
9	51.8CS08G012	ZOOM RING PC MN3600H HD66	
10	51.8EH05G011	ENTER KEY PC MN3600H HD66	
11	51.8EH06G061	4WAY KEY SILVER MN3600H WITH KEYSTONE LOGO EW539	
12	51.8CS17G002	TEFLON MYLAR 8mm*74mm 0.2t ZOOM RING PDG-DSU30	
13	41.89S18G001	EMI GASKET W7*H4*L20 (BLACK)	
14	52.88N23G001	SPONGE FOR ENTER KEY EP721	
15	51.8EH11G001	KEYPAD BOARD MYLAR ES526	
16	57.83N01G001	TEFLON FOR PD726W	

ASSY FAN SHIELDING MODULE



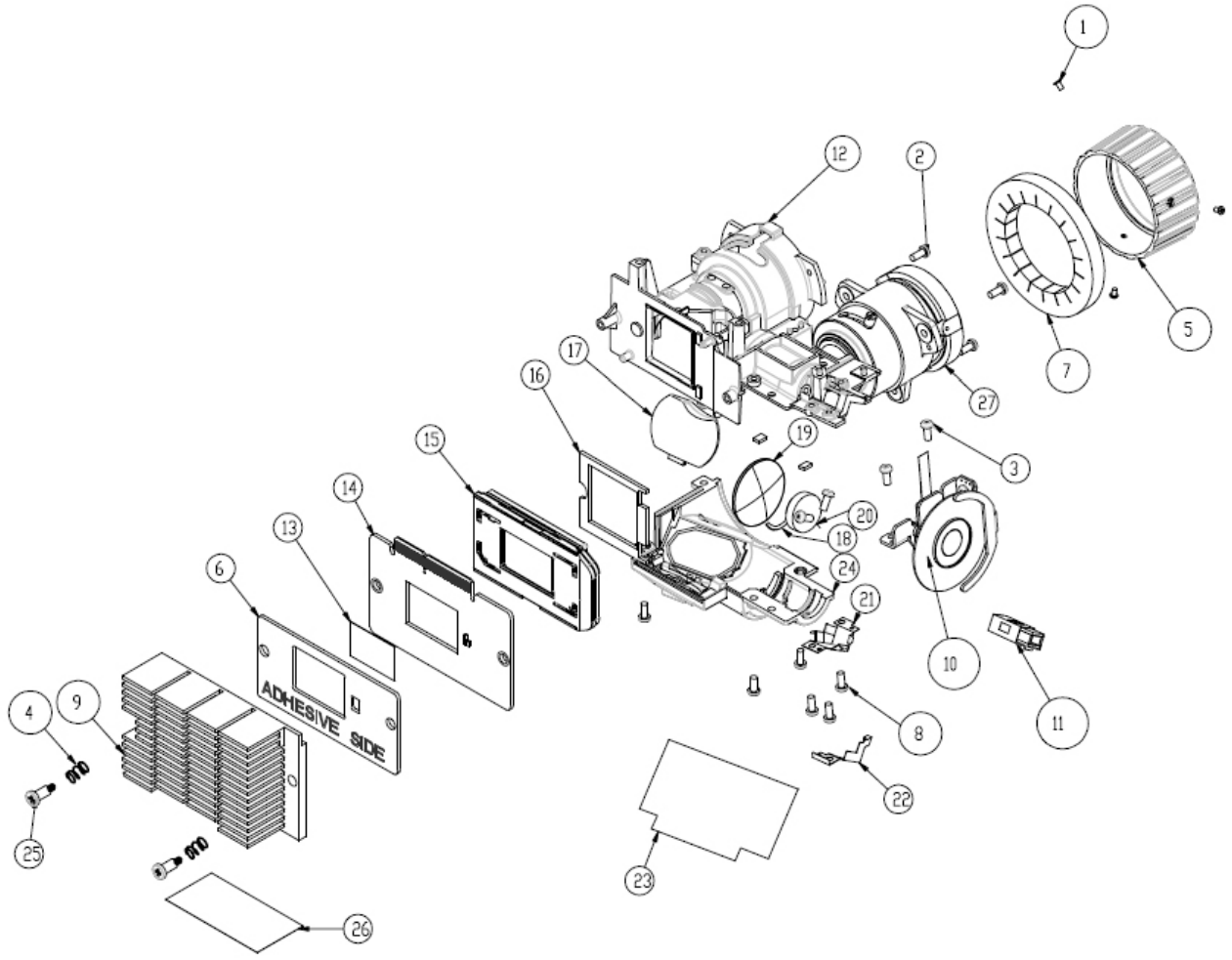
Item	P/N	Description	Parts Supply
1	49.8CP02G003	SUNON 70*70*20mm AXIAL FAN, SHRINK TUBE, WIRE LENGTH 155mm	V
2	51.88T18G001	KAPTON 10*10 0.05t X1160	
3	61.8AN01G002	LAMP BLOWER DUCT X15 GENERIC	
4	61.88T05G051	8FM TWO FAN SHIELDING	
5	85.1F123G260	SCREW PAN MECH E/SF M3*26 Ni	
6	85.1A123G060	SCREW PAN MECH M3*6 NI	
7	52.88T08G001	FAN SHELDING AIR TIGHT F12 X1160	
8	52.8EH02G002	SPONGE JK-1105 25X12X3 ES526	
9	61.8FM01G001	AL FOIL 1 8FM	

ASSY BOTTOM COVER MODULE



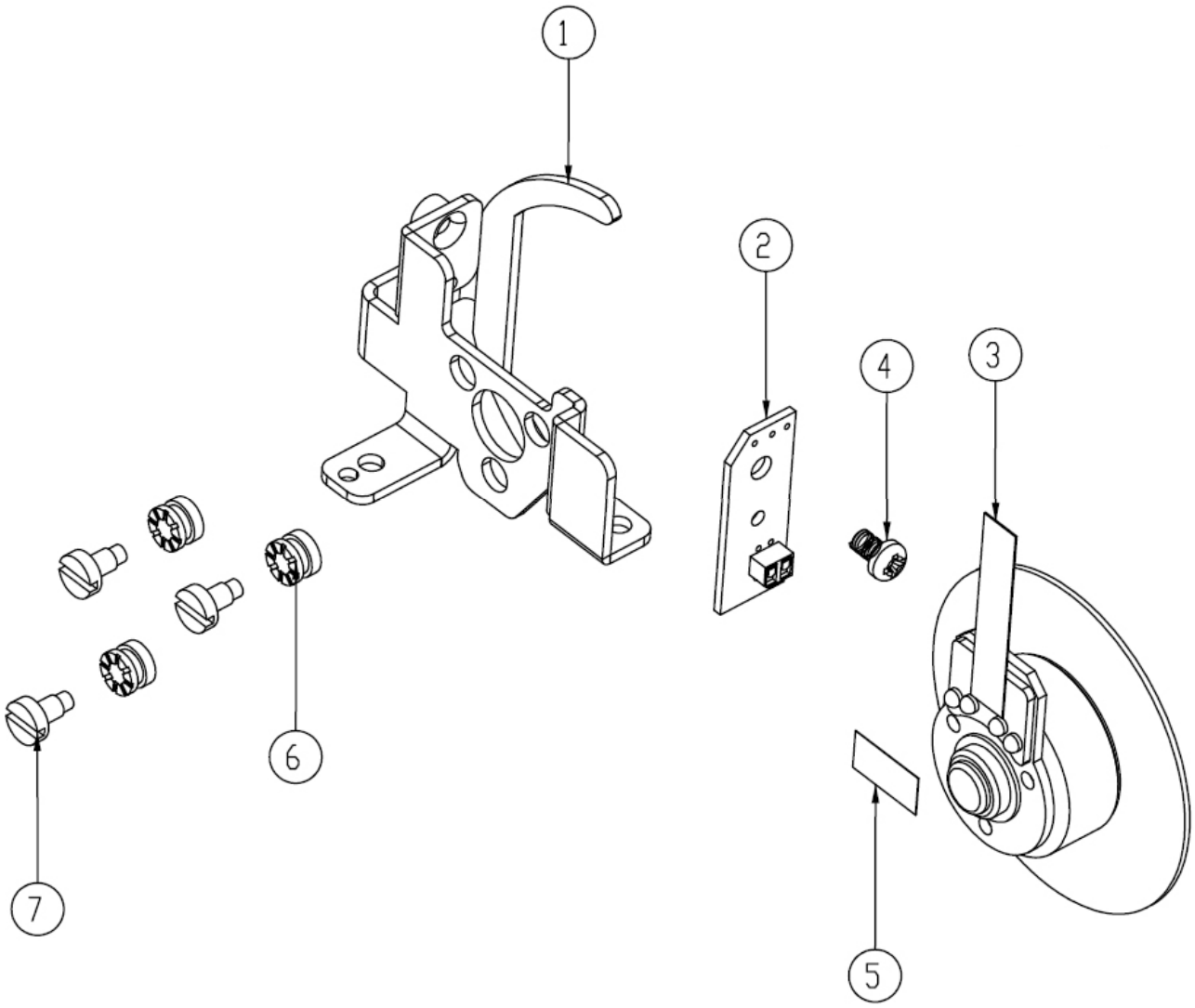
Item	P/N	Description	Parts Supply
1	52.8EH05G001	RUBBER ADJUST FOOT ES526	
2	75.8AA04G001	BUY ASSY INTERLOCK SWITCH 1409X	V
3	51.8CS02G011	BOTTOM COVER PC LN2520 BLACK EX538	V
4	51.8FE01G001	LVPS MYLAR EX538	
5	51.8CS15G001	K-LOCK MYLAR PDG-DSU30	
6	61.88T19G001	AC INLET BRACKET FOR X1160E	
7	61.8CS03H021	8FM BOTTOM SHIELDING 200W	
8	85.1A123G060	SCREW PAN MECH M3*6 NI	
9	85.1A626G050	SCREW PAN MECH M2.6*5 BLACK NYLOK	
10	85.1C224G051	SCREW PAN MECH M4*5 COLOR W/TOOTH WASHER Cr3+	
11	49.8CQ01G001	SPEAKER 2W 8OHM 90mm LB40200083-C198 GP ES526	V
12	51.89W18G011	LIMIT SWITCH HOLDER PC LN2520 BLACK EX538	
13	51.89W17G001	SPEAKER HOLDER PC MN3600H BLACK TDP-SP1	
14	51.8FM01G001	8FM LAMP DRIVER INLET MYLAR	
15	86.00122G020	YH-NUT-M2.0*2.0*4.0	
16	52.89W04G002	SPEAKER HOLDER PORON L-32 TDP-SP1	
17	51.8CS18G001	FRONT MYLAR PDG-DSU30	
18	41.8EH01G001	EMI GASKET W6*L6*H10	
19	41.89B02G001	EMI TAPE W*20/L*70	
20	75.8FE01GP01	ASSY MATRITEK 200W LVPS FOR EX538	V
21	51.8FM03G001	8FM LAMP DRIVER INLET MYLAR-2	
22	51.8EH12G001	LVPS GUIDE MYLAR ES526	
23	52.8EH06G001	SILICON RUBBER 18.8x7.6x4.8 ES526	
24	85.1C123G060	SCREW ISO M3*6mm NI PH W/LW BFA	
25	85.1C123G080	SCREW ISO M3*8mm NI PH W/LW	

ASSY ENGINE MODULE



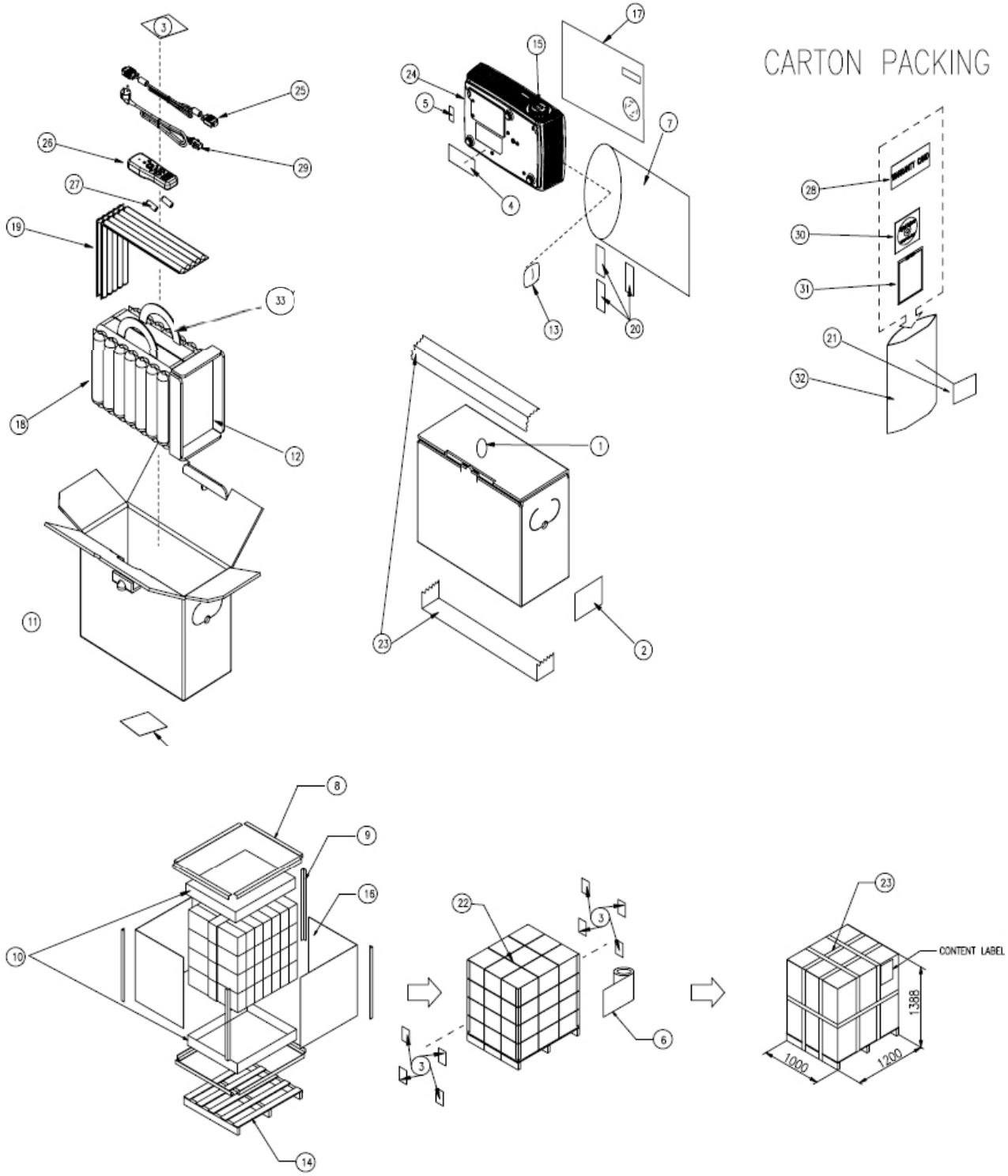
Item	P/N	Description	Parts Supply
	70.8FE12GR01	ASSY ENGINE MODULE FOR EX538 (SERVICE)	V
1	85.WA121G035	SCREW TAP FLAT HEAD M1.7*3.5 Ni	
2	85.5A526G060	SCREW BINDING MECH M2.6*6 Ni NYLOK	
3	85.1A526G050	SCREW PAN MECH M2.6*5 Ni NYLOK	
4	61.8CP15H001	SPRING FOR DMD STEP SCREW X1161	
5	51.8CS07G011	FOCUS RING PC MN3600H HD66	
6	52.8CP22G001	DMD PORON Z15/X15Z ENGINE	
7	51.8CS20G001	DUSTPROOF MYLAR FOR FOCUS RING PDG-DSU30	
8	85.1A526G060	SCREW PAN MECH M2.6*6 Ni NYLOK	
9	61.8CP02H002	DMD HEATSINK AL-ALLOY Z15 X1161	
	70.8HC09GR01	ASSY COLOR WHEEL MODULE BS275,BX275(SERVICE)	V
10	70.8LE06G001	ASSY 6S COLOR WHEEL MODULE Z15 EX539	
	70.8EH18GR01	ASSY ROD MODULE FOR ES526/EX536 (SERV-ICE)	V
11	70.8LE04G001	ASSY ROD MODULE EX539	
12	70.8LE07G001	ASSY ENGINE BASE Z15 EX539	
13	52.8CP04G001	S450 0.55” XGA/SVGA DMD thermal pad, FUJIPO-LY, Sarcon XR-HE, 18.4x12.5x0.5 mm	
14	80.8EH02G001	PCBA DMD BOARD FOR ES526	V
15	48.8CQ01G003	0.55” XGA 2xLVDS SERIES 450 DMD -8 1076-603cB TI	V
16	52.8CP01G001	DMD RUBBER X1161	
17	70.8FE12G001	ASSY RELAY MODULE EX538	
18	61.8EF03G001	CONDENSER LIGHT STOP EX615	
19	23.8AH20G011	YO CONDENSER 1 FOR A15W	
20	23.8AH20G012	YO CONDENSER 2 FOR A15W	
21	61.88N12G021	ROD SPRING SUS301 3/4H,X15	
22	61.8FE02G001	ROD COVER NEW 0.5T AL5052	
23	51.8CS30G001	3M TAPE FOR DSU30	
	70.8LE10GR01	ASSY ENGINE MODULE FOR ES529 (SERVICE)	V
24	70.8CP10G001	ASSY ENGINE BOTTOM COVER Z15	
25	61.8CP16H001	STEP SCREW FOR DMD M2.6*16.2mm X1161	
26	41.87Y03G001	EMI GASKET W13*H6*L35	
27	23.88N01G001	YO PROJECTION LENS YM09X FOR X15_氟素油	

ASSY COLOR WHEEL MODULE Z15



Item	P/N	Description	Parts Supply
	70.8FB23GR01	ASSY COLOR WHEEL MODULE EX762 (SERV-ICE)	V
1	61.8CP03G001	CW BRACKET SECC X1161	
2	80.8EG04G002	PCBA PHOTO SENSOR BOARD FOR HD20	V
3	23.8FB19G001	YO 5S R76Y32G78W98B76 CW_URD20 MOTOR_ TIM CHANGED TO W/B IN B	
4	85.1A126G040	SCREW PAN MECH M2.6*4 Ni	
5	51.82Y29G001	TAPE 3M J350 10*5mm FOR COLOR WHEEL DP715	
6	52.83615G001	COLOR WHEEL DISC RUBBER, EzPro755	
7	61.83628G001	COLOR WHEEL SHOULDER SCREW	

A.K.



Item	P/N	Description	Parts Supply
1	35.00040G001	LABEL 30mm,GREEN	
2	35.52302G091	LABEL CARTON 108*92 BLANK	
3	35.80N05G001	PALLET LABEL (W)100mm X(H)53mm FOR OP-TOMA MODEL	
4	35.86301G001	SPEC LABEL BLANK PD120	
5	35.8EG02G001	LAMP COVER USE LABEL	
6	51.00070GC01	PE STRETCH FILM 500MM*1500M*0.02MM GREEN FOR CPC	
7	51.52109G005	PE BAG 450*350*0.07 FOR OPTOMA EP720	
8	55.59901G001	CORNER BOARD 40*40*5*900mm GREEN	
9	55.80S06G001	PAPER CORNER 50*50*1230mm TDP-T90	
10	55.80S10G001	PAPER COVER 1180*980mm TDP-T91	
11	55.8EH01G001	CARTON AB FLUTE 18KG 395*165*314MM ES526	V
12	55.8EH02G001	PARTITION PAPER ES526	
13	57.00001G001	PACK SIO2 DRIER 20g	
14	58.54603G002	NEW WOOD PALLET120*100*13cm (DOUBLE FACE) FOR COMPAQ	
15	75.8CS02G001	LENS CAP MODULE ES526	
16	55.83R03G002	L TYPE PAPER 1190x1000x1350 EP747	
17	75.8EH13G001	TOP COVER PET MEMBRNE MODULE ES526	V
18	56.8EH01G001	PACKING BOTTOM AIR BAG 480*600MM ES526	
19	56.8EH02G001	PACKING TOP AIR BAG 240*1050MM ES526	
20	51.00037G001	TRANSPARENT TAPE 2.4cm	
21	35.82001G111	AK LABEL 3”*3” BLANK	
22	51.00069G001	PACKING STRAP 13.5MM*1500M*0.7MM GREEN	
23	51.0000AG011	PACKING TAPE 72MM FOR OPTOMA	
24	DC.8LE01G001	D.C. 200W XGA EX539	
25	42.00200G002	CABLE VGA 15P 1.8M BLK EP739 誠泰	V
26	45.8JA01G001	REMOTE CONTROL OF EW535ST/EX545ST WITHOUT LASER (3D)	V
27	46.80S01G101	BATTERY #7 1.5V NOVACELL	

Item	P/N	Description	Parts Supply
28	36.00024G001	WARRANTY CARD US FOR LPP SERIES, 1 YEAR	
29	42.50115G001	CABLE POWER CORD 1.8M SP30+IS14 US	V
30	36.8LH01G001	USER'S GUIDE MULTILINGUAL (CD) ES539/ EX539/EW539	V
31	36.8LH02G001	QUICK START CARD MULTILINGUAL ES529/ EX529/EW539	
32	51.86213G002	PE BAG ZIPPER #9 W/RECYCLING MARK FOR OPTOMA	
33	53.8EH01G001	SOFT CARRY BAG ES526	V

Appendix B

I. Serial Number System Definition

Serial Number Format for Projector

Q 8LE 0 09 AAAAA C 0001

1 2 3 4 5 6 7

1 : Q = Optoma

2 : 8LE = Project Code

3 : 0 = Last number of the manufacture year (ex:201<u>0</u> = 0)

4 : 09 = week of the manufacture year (ex:the ninth week of the year = 09)

5 : AAAAA = not-defined

6 : C = Manufacture factory

7 : 0001 = Serial Code

EX: Q8LE009AAAAAC0001

This label "Q8LE009AAAAAC0001" represents the serial number for EX539. It is produced at CPC on ninth of 2010. Its serial code is 0001.

II. PCBA Code Definition

PCBA Code for Projector

A	B	XXXXXXXXXX	C	XXX	EEEE
1	2	3	4	5	6

1 : ID

2 : Vendor Code

3 : P/N

4 : Revision

5 : Date Code

6 : S/N